

## **NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION**

### **New Jersey Draft Global Warming Response Act Recommendation Report January 16, 2009 Stakeholder Meeting – Non-CO2 Highly Warming Gases Summary of discussion and written comments**

#### **FOCUS QUESTIONS**

##### **Mobile A/C**

1. How effective is the sealing mechanism on resealable small canisters? Does it prevent loss of the contents of a can over a time-span that could extend several years?
2. Does resealing a small can prevent most of the release of refrigerant associated with consumer-serviced automobile air conditioners, or is the recharge of leaking systems still likely to cause significant emission of refrigerant?
3. What portion of the release of refrigerant from consumer-serviced automobile air conditioners is due to existing leaks that are not fixed during the course of consumers' service, which typically consists primarily of recharging a system?
4. Would potential upgrades to motor vehicle on-board diagnostic systems (OBD) be capable of detecting loss of refrigerant or significant leaks, or would OBD simply record failure of A/C components, which would likely happen after significant refrigerant loss?
5. When are the A/C-related upgrades to on-board diagnostic systems expected to occur?

##### **Refrigeration**

6. What information is available on the number, size and types of units in New Jersey? How many direct expansion systems, distributed systems, and secondary loop systems are in use in New Jersey?
7. What information is available on leak rates of different types of refrigeration equipment in New Jersey?
8. Are the LDAR and other federal requirements for ozone depleting substances a useful framework for addressing high GWP gases? What changes would improve the effectiveness of the program?
9. What percentage of refrigeration systems have automatic leak detection?
10. Are there any new leak detection technologies – including remote sensing units or other technologies that might be able to be employed in a locale or other technologies that might be able to be employed in a locale or at a building-wide scale but not necessarily at a unit-specific scale that holds promise in detecting leaks?
11. What replacements are being developed for high GWP gases?

## **SUMMARY OF DISCUSSION AND WRITTEN COMMENTS**

### **MOBILE SOURCES**

#### **Small cans**

- If there is a small can recommendation in the report, define “small”.
- There is a self-sealing valve used by the small can industry that prevents 97-99% of emissions during the installation of charging apparatus. It has a mechanism to seal the can after charging. The self-sealing valve is an emission mitigation technology.
- Accelerated testing indicates seal will last for years.
- Examination of 20 year old cans has shown that gas stays in the can for 20 years. There are no studies beyond 20 years.
- Question: If the valve works so well, why does California require recycling?  
Answer: Recycling has public appeal, but is unnecessary for small cans with the self-sealing valve.. The allows only negligible “residual can heal”. The recycling provision is expensive, and won’t be environmentally effective.
- The recommendation for a small can consumer return/recycling requirement is good.
- Current available technology is for one-time puncture.

#### **Recharging of leaking systems**

- Industry associations have data on this. Check the Mobile Air Conditioning Society and the Automatic Refrigeration Products Institute.
- Catastrophic leaks require professional services. Do-it-yourselfers do seek professional help if their systems are leaking. Consumer education programs instruct consumers when to seek professional help.
- Industry also offers leak-stop products.
- There is no data on reoccurrence (repeated charging) by do-it-yourselfers. There is anecdotal evidence, but no data. The IMR Panel has data sources that capture consumer behavior.

#### **Onboard diagnostics (OBD)**

- Electronic detecting devices – Existing OBD systems are electronic detecting systems, and do not monitor air conditioning components.
- Chemical detection devices - Air conditioning monitoring would require chemical detection. This would be costly
- Pressure monitoring devices – these would indicate catastrophic failure, not slow leakage. Counterargument: There is an analog in the pharmaceutical industry. The pharmaceutical industry has data on pressure monitoring over time.

**Potential replacements for high-GWP systems?**

- There are potential replacements for high-GWP systems. This information is proprietary. There have been announcements, particularly with respect to the mobile market.

**REFRIGERATION AND AIR CONDITIONING****Size and types of refrigeration units in New Jersey**

- There is no data available for New Jersey or nationally. There are informal surveys.
- California has data from South Coast Air Quality Management District Rule 1415. In the most recent analysis, the California model assumed that SCAQMD data was representative.
- There is only one model internationally. This was the model used by California.

**Leak rates for New Jersey systems**

- North America Technician Excellence (NATE) may have data on leak rates for HFCs. NATE certifies technicians.
- The Alternative Fluorocarbons Environmental Acceptability Study web site [www.afeas.org](http://www.afeas.org) has global data on emissions profiles.

**Is LDAR and other federal requirements for ozone-depleting substances a useful framework for looking at HFCs?**

- The EPA never extended the Federal Clean Air Act Section 608 and 609 requirements to HFCs via regulation. There was a Waxman bill would have done so.

**Automatic leak detection systems for refrigeration systems**

- Monitoring requirements for these systems should vary based on the size of the equipment. California used weight of refrigerant to define “large” vs. “small” system.

**Potential replacements for high-GWP systems**

- There are potential replacements for high-GWP systems. This information is proprietary. There have been announcements, particularly with respect to the mobile market.
- There is currently no viable safe alternative to HFCs that is energy efficient.
- There is currently no viable safe alternative to HFCs that is safe (example – propane). The safety issues increases with automotive air conditioning systems.

- There is concern about potential toxicity because lower-GWP chemicals are more reactive.
- It takes a minimum of six years to develop new chemicals and bring them to market. For every 100 chemicals that are screened, you may get one chemical that goes commercial. It is a very expensive process.

### **Consider efficiency of equipment and reductions in energy use**

- HFCs allow equipment to run more efficiently and use less energy. As an example, new 13 SEER products require on average 20 to 30% more refrigerant charge than the less efficient 10 SEER units they have replaced.

### **SF6**

- There has been voluntary reporting of SF6 emissions in NJ.
- An SF6 leak detection camera is in development.
- Written comments will be submitted regarding SF6 reduction as offset projects under the Regional Greenhouse Gas Initiative rules.
- SF6 emissions reductions will be most effectively achieved through the Regional Greenhouse Gas Initiative (RGGI) incentive-based SF6 emission offset category. Further, individual efforts by States in the RGGI region to regulate SF6 could serve to undermine and compromise the regional accord.
- SF6 offset guidance should be established in an open process with adequate public review.
- There are no viable SF6 replacements.
- Manufacturers have been working development of equipment with better seals.
- Please provide clarification on how the State intends to reduce to emissions to 75%.
- SF6 leak detection and repair is a management process issue. Management process issues require training, and are not amenable to regulation.

### **Fire protection**

- The fire protection industry, in partnership with USEPA, Fire Equipment Manufacturers Association and others, has used Voluntary Code of Practice for the Reduction of Emission of HFC & PFC Fire Protection Agents (VCOP).
- The fire protection industry also implemented a voluntary data collection effort called the HFC Emissions Estimating Program (HEEP) that uses sales of extinguishing agents for recharge as a way to estimate annual emissions.
- One company reports the availability of a substitute for HFCs in clean agent fire protection that does not deplete stratospheric ozone and has a global warming potential of 1. This substitute has been commercially available globally for the past six years.

### **Other issues**

- It was recommended that the State work with the Department of Health on refrigeration issues. Example – what are the HWG emission ramifications of the requirement for a two-degree decrease in refrigeration temperature for dairy products?
- It was recommended that Northeast states work together on regulatory efforts related to HWG because of the Regional Greenhouse Gas Initiative.
- HFCs have been approved as “essential use” replacements for CFCs in asthma inhalers. Medical devices should be regulated differently than industrial sources; the recommendations report should ensure that there aren’t industrial impacts to medical devices.
- When looking at the issue of climate change and HFCs policy makers must consider the importance of efficiency. The main environmental concern for our products is the energy required to run the product. The composition of HFCs allows equipment to run more efficiently and use less energy. As an example, new 13 SEER products require on average 20 to 30% more refrigerant charge than the less efficient 10 SEER units they have replaced.

## **Methane**

- *NOTE: The summary of comments related to methane reflect comments received at both this meeting and the January 29, 2009 Stakeholder Meeting – Industry, EGUs, Waste and Water.*

## **Methane – Global warming potential and time horizon**

- Our accounting method understates the importance of controlling methane. Methane has a 12-year atmospheric lifetime; its GWP of methane is 25x over a 100 year time horizon, but 72x over a 20 year time horizon. A time horizon of 100 years only makes sense if you’re looking to reduce emissions/effects over 100 years. GHG policies are affected by the time horizon: we have a legal horizon of 2020 and 2050, so we should look at GWP over those timeframes, not a 100 year timeframe.
- *NJDEP response: The 100 year timeline allows us to be consistent with everyone else’s reporting and accounting standards. It is a compromise that aims to balance short-lived species with long-lived species. This is an inventory issue; if we change the timeline for methane, we would have to change the timelines for longer-lived gases as well.*

## **Methane – control/avoidance/reduction**

- See **Organic Waste Issues** above.
- Landfills are the largest source of methane in the U.S.
- Research from Europe shows that a tight cap on landfills and venting eliminates 99% of methane release. However, most methane emissions are released from active landfills *before* they are capped. At active landfills, recovery is only 30%. Venting plus a daily cap = 60%. Permanent cap = 95%. This is a huge opportunity for emissions reductions.

- Increase the focus on food and organic waste in order to reduce methane production. Preventing methane from being generated in the first place is much better than burning it; recycling and reuse are more energy efficient than waste-to-energy.
- Methane reduction is very doable.
- Use market-based incentives for methane reduction. Offsets from avoided methane technologies and practices can pay for the processes.
- Handling landfill methane better gives a much bigger reduction in radiative forcing than fuel displacement at EGUs.
- NJDEP recycling programs should address food waste.
- Methane is both a threat and an opportunity. Methane capture from non-industrial sources is a good fuel opportunity. It is the cleanest-burning fossil fuel we have; the use of methane as a fuel source offsets the use of more carbon-intensive fossil fuels.
- It is better to intercept organic waste before it gets to the landfill because of the resulting methane avoidance. It is also more cost-effective.